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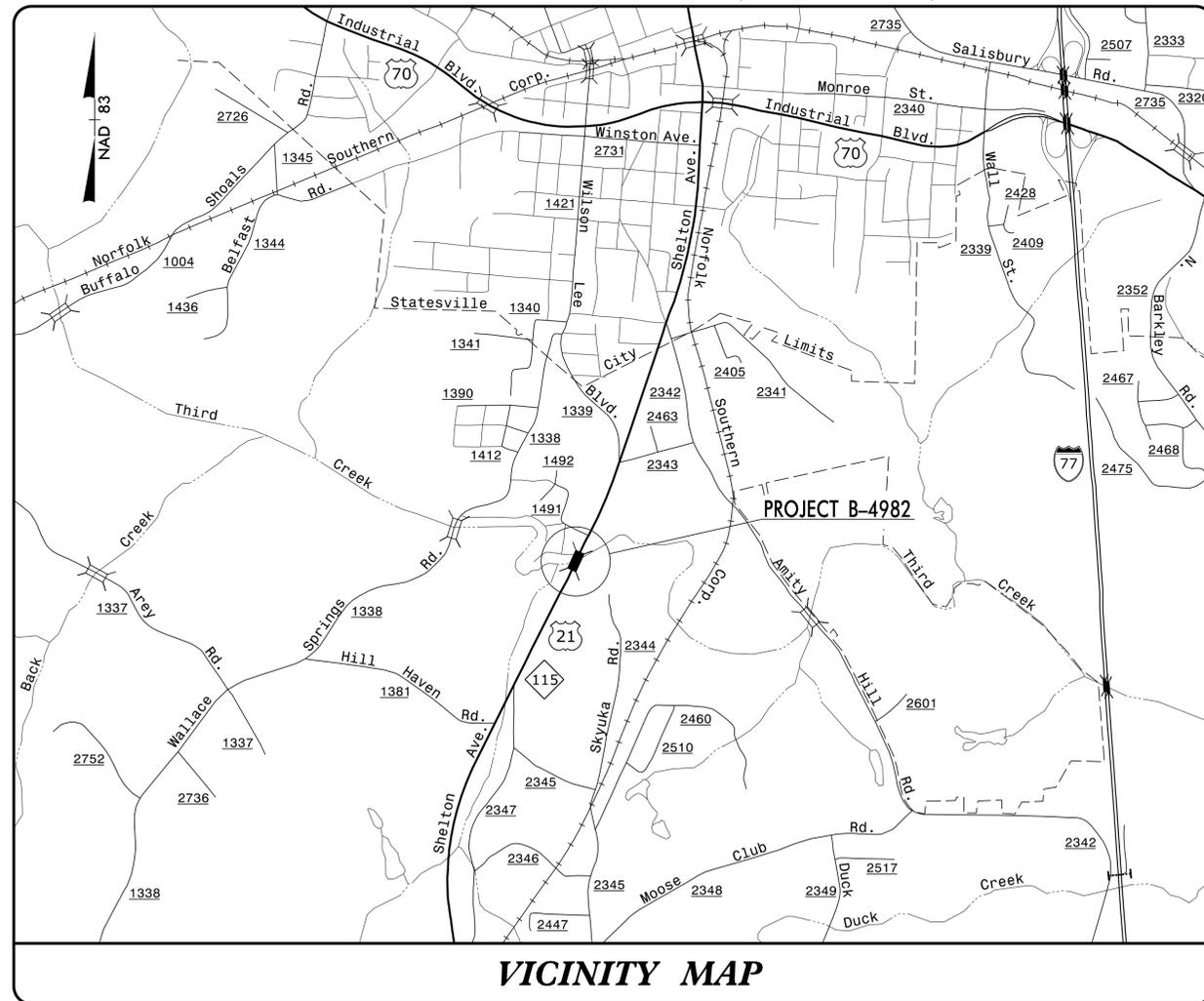
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**IREDELL COUNTY**



LOCATION: REPLACE BRIDGE NO.38 ON US 21-NC 115 (SHELTON AVE.) OVER THIRD CREEK



**VICINITY MAP**

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKINGS
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (TRANSPORTATION OPERATIONS AND GENERAL NOTES)
TMP-2	TEMPORARY SHORING NOTES
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TMP-3	TEMPORARY TRAFFIC CONTROL PHASING AND PHASE I DETAILS
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SHEET NO.  
TMP-1

**B-4982**

**TIP PROJECT:**

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APPROVED: *Don A. Parker*

DATE: 6/28/2017

SEAL



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# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

# LEGEND

## GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)



## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

## PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

## TEMPORARY PAVEMENT MARKING

- PA - WHITE EDGELINE (PAINT) - 4"
- PD - WHITE MINISKIP (PAINT) - 4"
- PI - YELLOW DOUBLE CENTER (PAINT) - 4"
- P2 - WHITE STOP BAR (PAINT) - 24"
- CA(IV) - WHITE EDGELINE (COLD APPLIED PLASTIC) - 4"
- CI(IV) - YELLOW DOUBLE CENTER (COLD APPLIED PLASTIC) - 4"

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APPROVED: <small>DocuSigned by: Don A. Parker 4004828281841D...</small> DATE: 3/5/2018			<h3>ROADWAY STANDARD DRAWINGS &amp; LEGEND</h3>
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## GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

### TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 21/NC 115 (-L-)	MONDAY THRU FRIDAY 7:00 A.M. - 9:00 A.M. 4:00 P.M. - 6:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
US 21/NC 115 (-L-)

### HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S DAY, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st AND 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY AND 6:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- FOR CAROLINA BALLOON FESTIVAL, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE THE EVENT BEGINS AND 6:00 P.M. THE DAY AFTER THE EVENT ENDS.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION & OPERATION
US 21/NC 115	MONDAY THRU SUNDAY 7:00 A.M. - 11:00 P.M.	30 MINUTES FOR DELIVERY AND PLACEMENT OF BRIDGE GIRDERS

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

- BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

- DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 350 FT. IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

- NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

### SIGNING

- INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

### TRAFFIC BARRIER

- INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO RSD 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

### TRAFFIC CONTROL DEVICES

- WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURE SECTIONS, 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

- PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

### PAVEMENT MARKINGS AND MARKERS

- INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 21/NC 115 (ASPHALT)	PAINT	TEMPORARY
US 21/NC 115 (BRIDGE)	COLD APPLIED (IV)	TEMPORARY

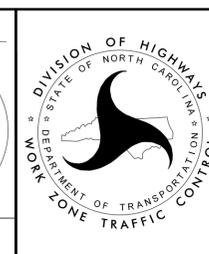
- PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN FINAL PAVEMENT MARKING PLAN.

APPROVED: Don A. Parker  
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DATE: 6/28/2017



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## TRANSPORTATION OPERATIONS PLAN

SHORING LOCATION NO.	FROM STATION AND OFFSET	TO STATION AND OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	STA. 19+00+/- -L- 6.0 FT. LT.	STA. 20+02+/- -L- 6.0 FT. LT.	2.8 FT.	3.2 FT.	ROADWAY
	STA. 20+02+/- -L- 6.0 FT. LT.	STA. 20+45+/- -L- 6.0 FT. LT.	6.1 FT.	6.1 FT.	STRUCTURE
NO. 2	STA. 21+79+/- -L- 6.0 FT. LT.	STA. 22+17+/- -L- 6.0 FT. LT.	5.4 FT.	5.4 FT.	STRUCTURE
	STA. 22+17+/- -L- 6.0 FT. LT.	STA. 23+25+/- -L- 6.0 FT. LT.	3.7 FT.	4.0 FT.	ROADWAY

### TEMPORARY SHORING NOTES

#### SHORING LOCATION NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STA. STA. 19+00+/- -L-, 6.0 FT. (LT.) TO STA. 20+45+/- -L-, 6.0 FT. (LT.) FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\gamma$ ) = 120 LB/CF  
 FRICTION ANGLE ( $\phi$ ) = 15 DEGREES  
 COHESION (c) = 200 LB/SF  
 GROUNDWATER ELEVATION = 776 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STA. 19+00+/- -L-, 6.0 FT. (LT.), TO STA. 20+45+/- -L-, 6.0 FT. (LT.). THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STA. 19+00+/- -L-, 6.0 FT. (LT.), TO STA. 20+45+/- -L-, 6.0 FT. (LT.) MAY NOT PENETRATE BELOW ELEVATION 765 DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. STA. 19+00+/- -L-, 6.0 FT. (LT.) TO STA. 20+45+/- -L-, 6.0 FT. (LT.).

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 19+00+/- -L-, 6.0 FT. (LT.), TO STA. 20+45+/- -L-, 6.0 FT. (LT.). SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

#### SHORING LOCATION NO. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION. BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STA. STA. 21+79+/- -L-, 6.0 FT. (LT.) TO STA. 23+25+/- -L-, 6.0 FT. (LT.) FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\gamma$ ) = 120 LB/CF  
 FRICTION ANGLE ( $\phi$ ) = 15 DEGREES  
 COHESION (c) = 200 LB/SF  
 GROUNDWATER ELEVATION = 778 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STA. 21+79+/- -L-, 6.0 FT. (LT.), TO STA. 23+25+/- -L-, 6.0 FT. (LT.). THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STA. 21+79+/- -L-, 6.0 FT. (LT.), TO STA. 23+25+/- -L-, 6.0 FT. (LT.) MAY NOT PENETRATE BELOW ELEVATION 775 DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. STA. 21+79+/- -L-, 6.0 FT. (LT.) TO STA. 23+25+/- -L-, 6.0 FT. (LT.).

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 21+79+/- -L-, 6.0 FT. (LT.), TO STA. 23+25+/- -L-, 6.0 FT. (LT.). SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

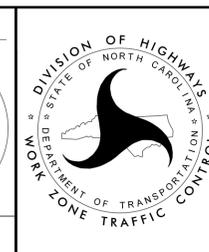
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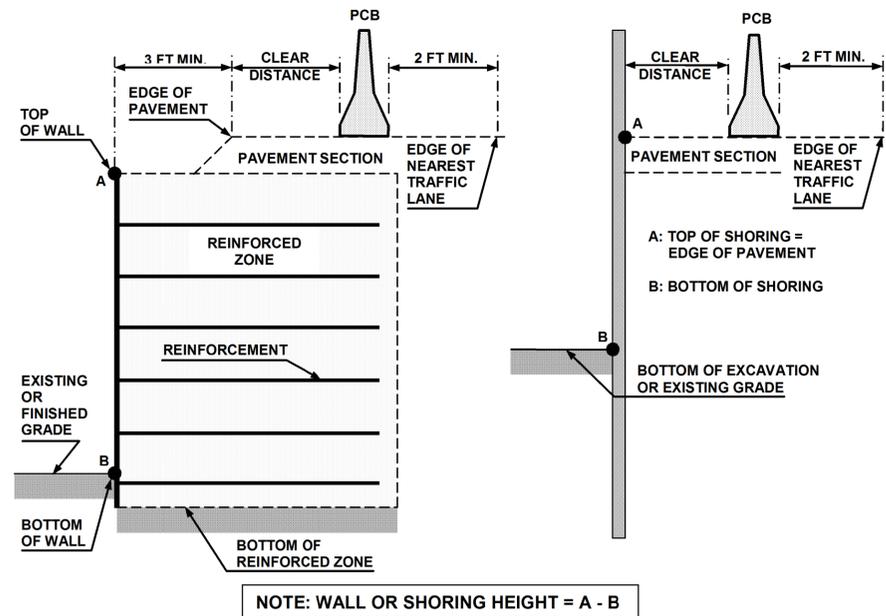
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TEMPORARY SHORING NOTES



## FIGURE A

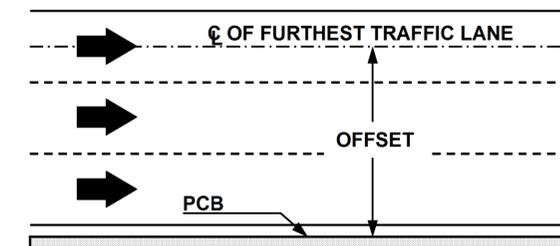
### NOTES

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

### MINIMUM REQUIRED CLEAR DISTANCE, inches

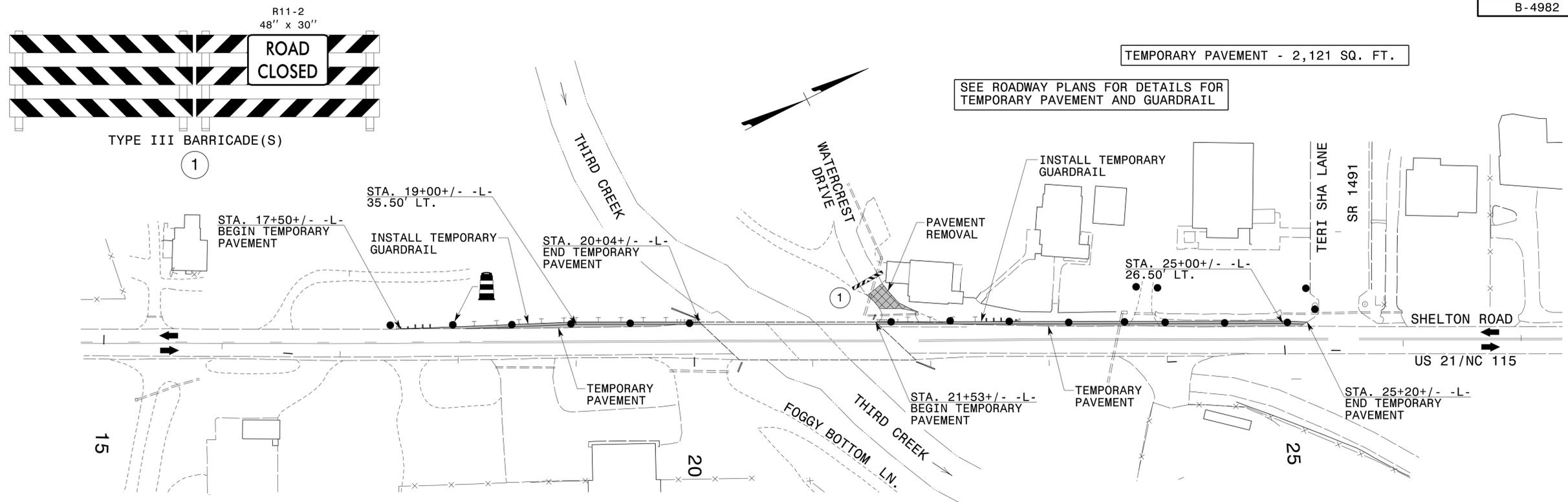
Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
50-56		26	26	28	32	35	38	
>56	26	27	29	32	36	38		
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

\* See Figure Below



## FIGURE B

APPROVED: <i>Don A. Parker</i> <small>400482802619410...</small> DATE: 6/28/2017 		PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
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### TEMPORARY TRAFFIC CONTROL PHASING

NOTE: BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL PLACE ADVANCE WORK ZONE WARNING SIGNS ALONG US 21/NC 115 (SHELTON AVENUE) AND TERI SHA LANE (SR 1491), SEE RSD 1101.01, SHEET 3 OF 3

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.

#### PHASE I

- STEP 1. USING RSD 1101.02 (SHEET 1 OF 14), CONSTRUCT TEMPORARY PAVEMENT, INCLUDING TEMPORARY GUARDRAIL, UP TO EXISTING EDGE OF PAVEMENT AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-3):
  - STA. 17+50+/- -L- TO STA. 20+04+/- -L-
  - STA. 21+53+/- -L- TO STA. 25+20+/- -L-
- USING RSD 1101.02 (SHEET 1 OF 14), PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AS FOLLOWS (SEE TMP-4):
  - STA. 17+50+/- -L- TO STA. 26+00+/- -L-
- STEP 2. USING RSD 1101.02 (SHEET 1 OF 14), PLACE PORTABLE CONCRETE BARRIER (ANCHORED) AS SHOWN ON TMP-4.
- STEP 3. BEHIND PCB, REMOVE EXISTING BRIDGE, INSTALL TEMPORARY SHORING, AND CONSTRUCT PROPOSED BRIDGE AND ROADWAY APPROACHES UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS, TMP-4, TMP-4A, AND TMP-4B):
  - STA. 19+00+/- -L- TO STA. 23+25+/- -L-
- STEP 4. USING RSD 1101.02 (SHEET 1 OF 14), GRADE AND PAVE UP TO BUT INCLUDING THE FINAL LAYER OF SURFACE TO THE EXTENT THAT THE EXISTING TRAFFIC PATTERN IS NOT INTERFERED WITH AS FOLLOWS (SEE CONSTRUCTION PLANS, TMP-4 TMP-4A, AND TMP-4B):
  - STA. 18+25+/- -L- TO STA. 19+00+/- -L-
  - STA. 23+25+/- -L- TO STA. 24+75+/- -L- (INCLUDING -DR3-)

NOTE: USE INCIDENTAL STONE AS DIRECTED BY THE ENGINEER TO MAINTAIN ACCESS TO -DR3- WHILE BRINGING THE GRADE UP.

- STEP 5. USING RSD 1101.02 (SHEET 1 OF 14), WIDEN AND WEDGE OVER EXISTING PAVEMENT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE AS FOLLOWS (SEE CONSTRUCTION PLANS, TMP-4 TMP-4A, AND TMP-4B):
  - STA. 13+00+/- -L- TO STA. 18+25+/- -L-
  - STA. 24+75+/- -L- TO STA. 29+25+/- -L-

NOTE: AT THE END OF EACH WORK PERIOD, FEATHER WEDGING DOWN AT A RATE OF 100:1 TO MEET EXISTING PAVEMENT AND REPLACE ANY PAVEMENT MARKINGS COVERED OVER.

#### ICT

COMPLETE THE WORK OF PHASE I, STEPS 6 THRU 9 FROM FRIDAY AT 6:00 P.M. TO THE FOLLOWING MONDAY AT 6:00 A.M. (SEE INTERMEDIATE CONTRACT TIME LIQUIDATED DAMAGES).

- STEP 6. USING RSD NO. 1101.02 (SHEET 1 OF 14), INSTALL THE TEMPORARY PORTABLE SIGNAL, STOP BARS, AND ADVANCED WARNING SIGNS FOR A 1 LANE, 2 WAY TRAFFIC PATTERN AS DETAILED ON TMP-5.

NOTE: DURING DAYTIME OPERATIONS, A FLAGGER CONTROLLED LANE CLOSURE MAY BE UTILIZED INSTEAD OF THE TEMPORARY SIGNAL.

- STEP 7. USING RSD NO. 1101.02 (SHEET 1 OF 14), REMOVE CRASH CUSHIONS AND ADJUST ANCHORED PCB. PARK A TMA IN FRONT OF PCB ENDS AS DETAILED ON TMP-5.
- STEP 8. COMPLETE THE WIDENING AND PAVING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE TO ACCOMMODATE THE PHASE II TRAFFIC PATTERN AS FOLLOWS:
  - STA. 18+25+/- -L- TO STA. 19+00+/- -L-
  - STA. 23+25+/- -L- TO STA. 24+75+/- -L- (INCLUDING -DR3-)

NOTE: MAINTAIN ACCESS TO -DR3- DURING THIS OPERATION AS DIRECTED BY THE ENGINEER.

- STEP 9. USING RSD NO. 1101.02 (SHEET 1 OF 14), INSTALL ANCHORED PCB, RESET CRASH CUSHIONS, PLACE TEMPORARY MARKINGS AND MARKERS, ADVANCED WARNING SIGNING AND OPEN TO THE TRAFFIC PATTERN AS DETAILED ON TMP-6.

- #### PHASE II
- STEP 1. BEHIND PCB AND USING RSD 1101.02 (SHEET 1 OF 14) AS NECESSARY, CONSTRUCT PROPOSED BRIDGE, APPROACHES, LEFT SIDE WIDENING, AND PAVING AND WEDGING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS AND TMP-6)
    - STA. 13+00+/- -L- TO STA. 29+25+/- -L-
  - STEP 2. USING RSD NO. 1101.02 (SHEET 1 OF 14), REMOVE PCB AND CRASH CUSHIONS.
  - STEP 3. USING RSD NO. 1101.02 (SHEET 1 OF 14), PAVE THE FINAL LAYER OF SURFACE COURSE AND PLACE FINAL PAVEMENT MARKINGS AND MARKERS. OPEN PROJECT TO FINAL TRAFFIC PATTERN.
  - STEP 4. REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: *Don A. Parker*  
 DATE: 3/5/2018

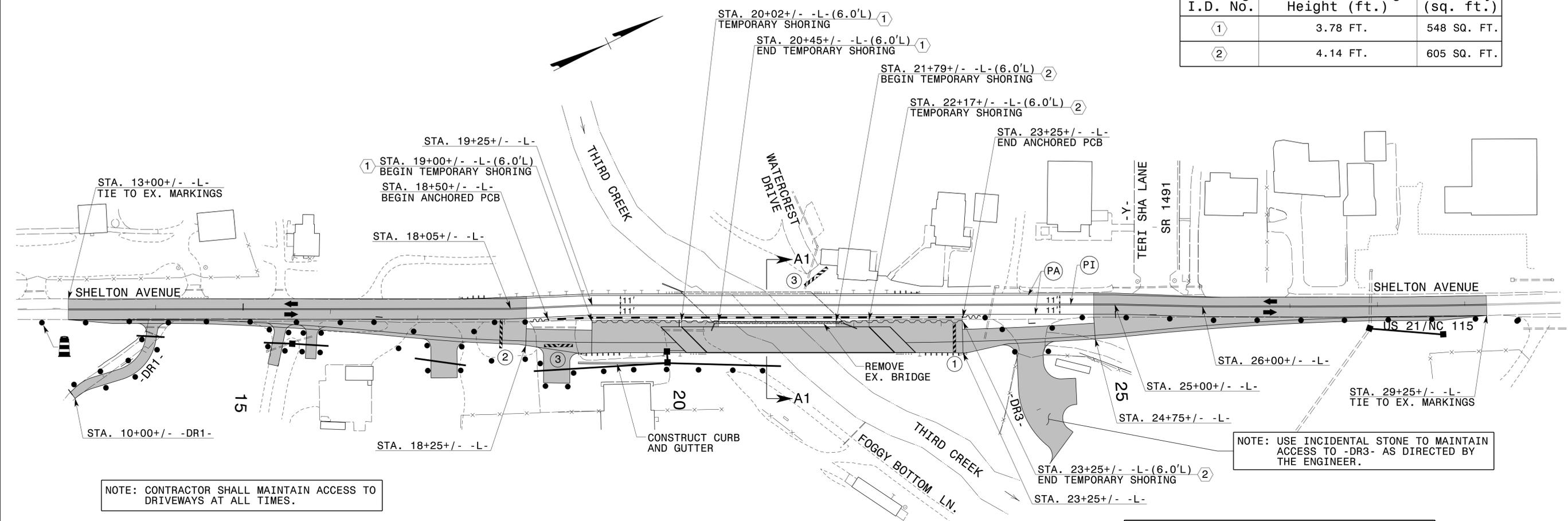
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TEMPORARY TRAFFIC CONTROL PHASING AND PHASE I DETAILS

3/5/2018 P:\TIP\Projects-B\B4982\Traffic\TrafficControl\TCP\B4982\_TC\_PHL\_TMP03.dgn User:scodts

Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
①	3.78 FT.	548 SQ. FT.
②	4.14 FT.	605 SQ. FT.

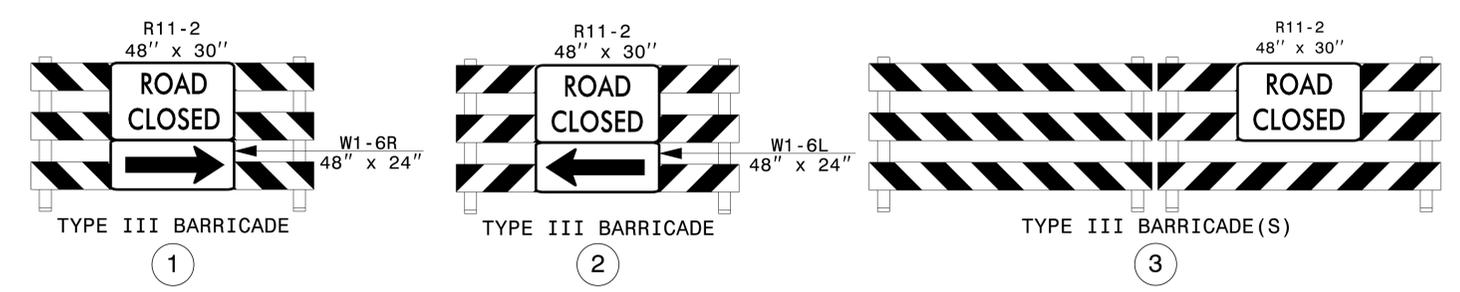
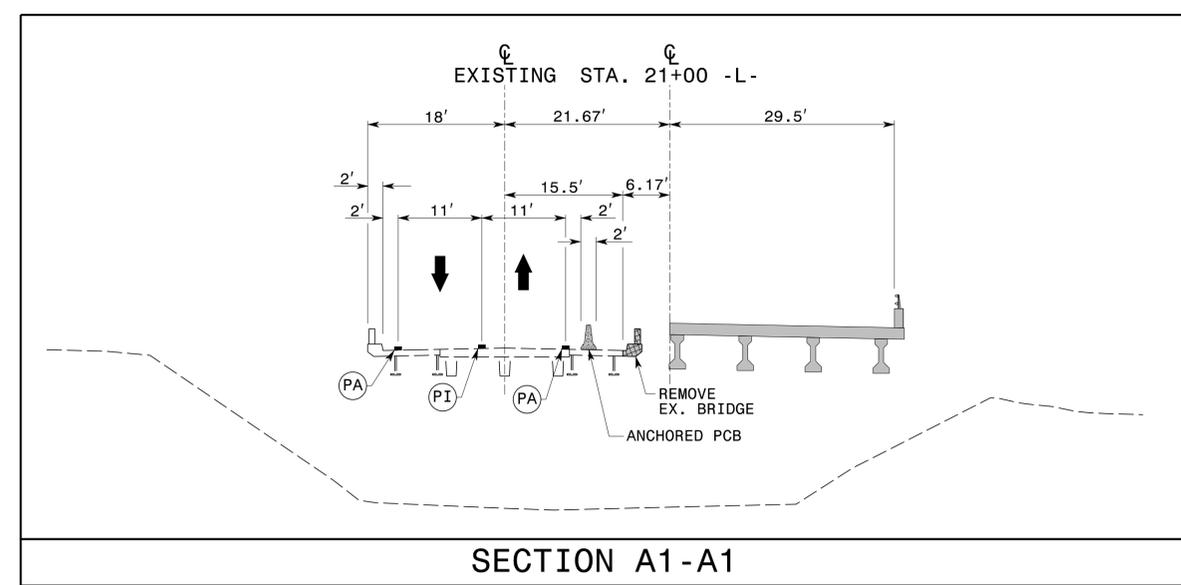


NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.

NOTE: USE INCIDENTAL STONE TO MAINTAIN ACCESS TO -DR3- AS DIRECTED BY THE ENGINEER.

TEMPORARY PAVEMENT MARKING LEGEND	
PA	PAINT - WHITE EDGELINE - (4")
PI	PAINT - YELLOW DOUBLE CENTER - (4")

REFER TO RSD NOS. 1205.01, 1205.02, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.



APPROVED: Don A. Parker  
 DATE: 6/28/2017

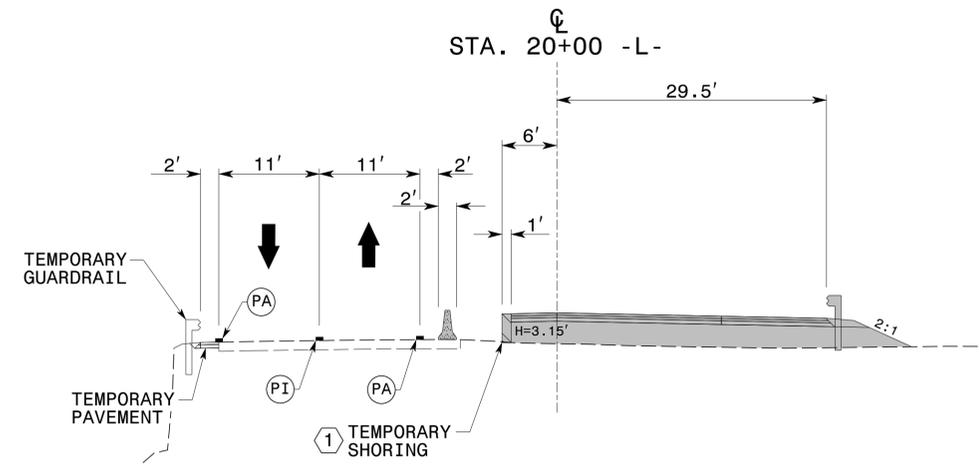
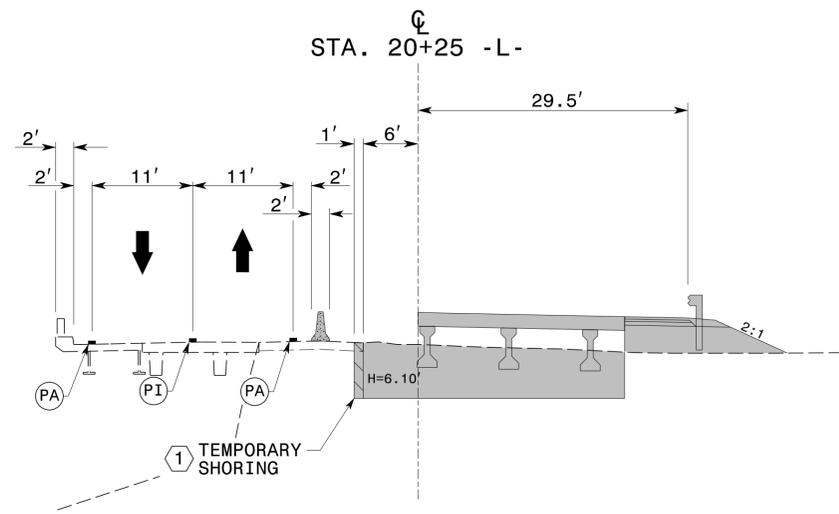
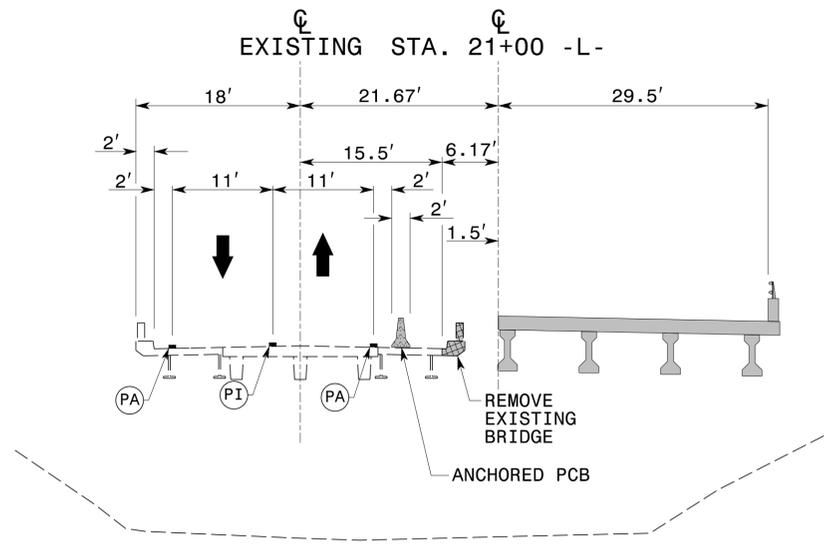
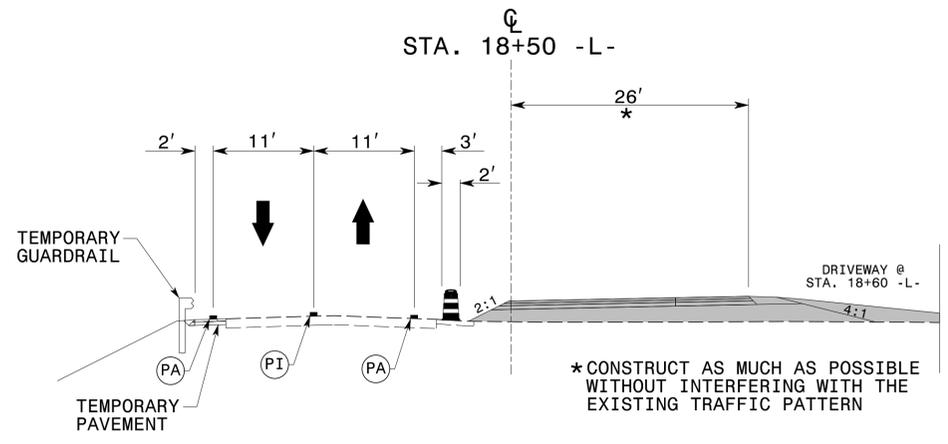
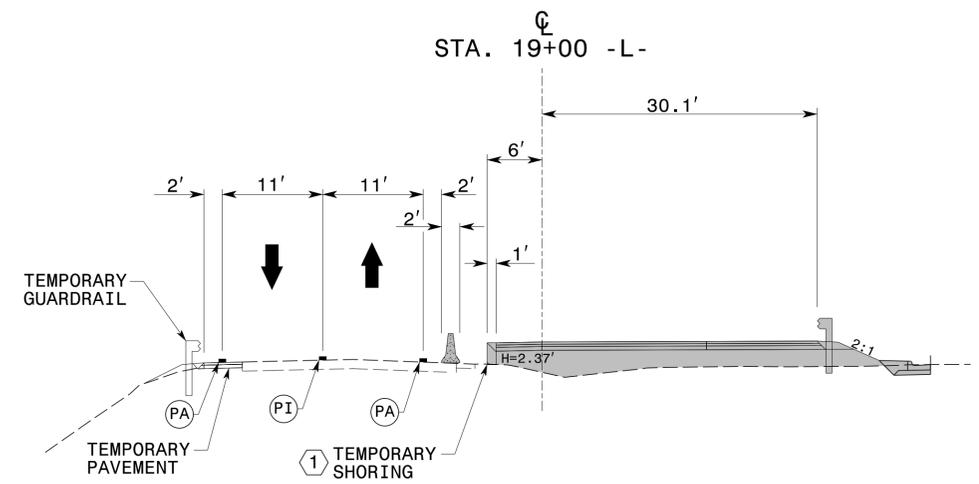
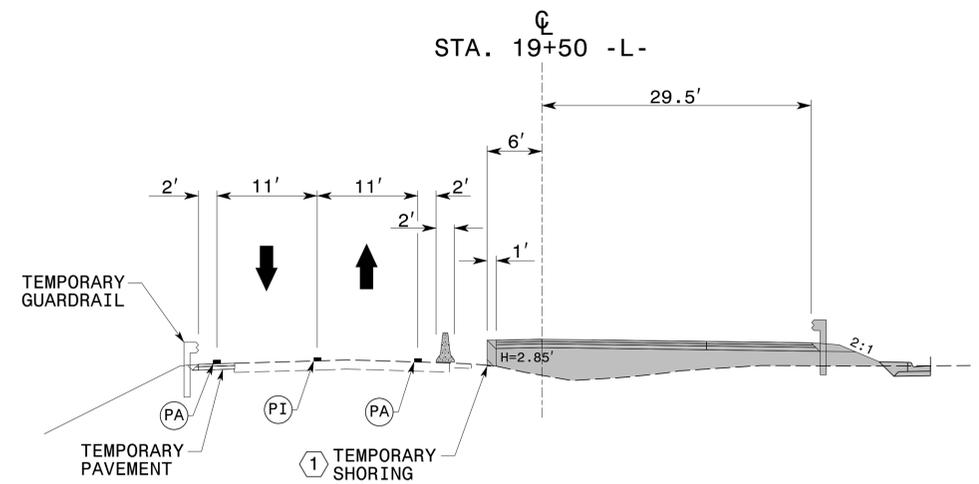
SEAL 043251  
 ENGINEER  
 DON A. PARKER

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PHASE I DETAILS

5/22/2017  
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 User:scodts

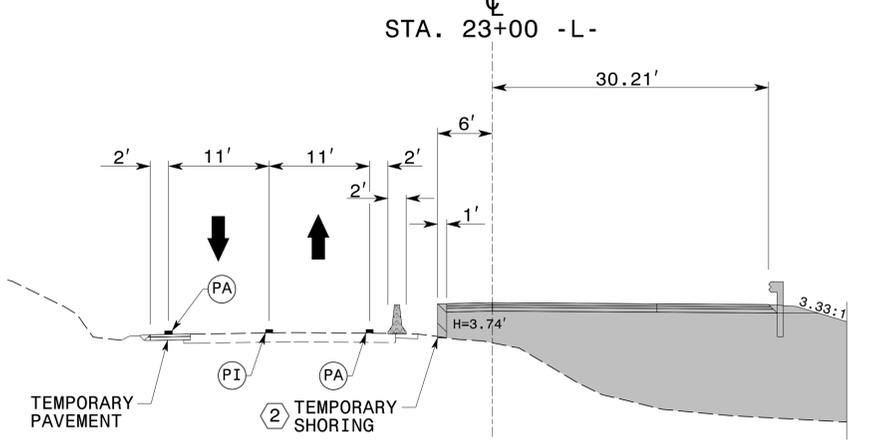
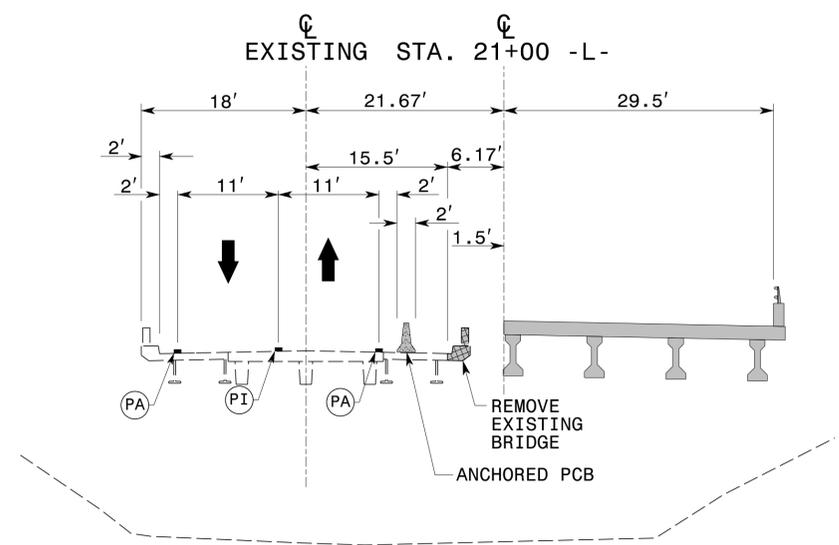
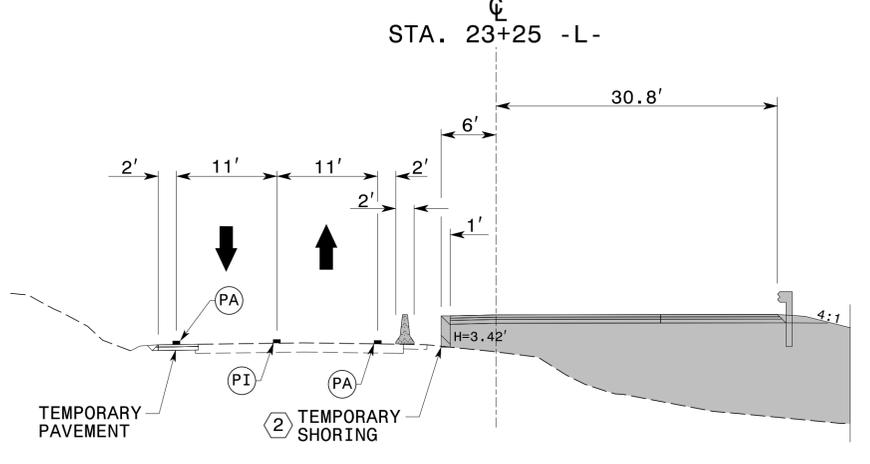
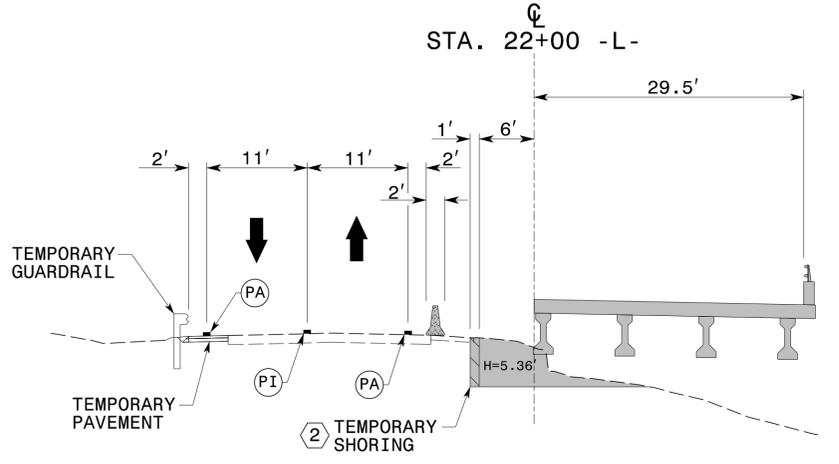
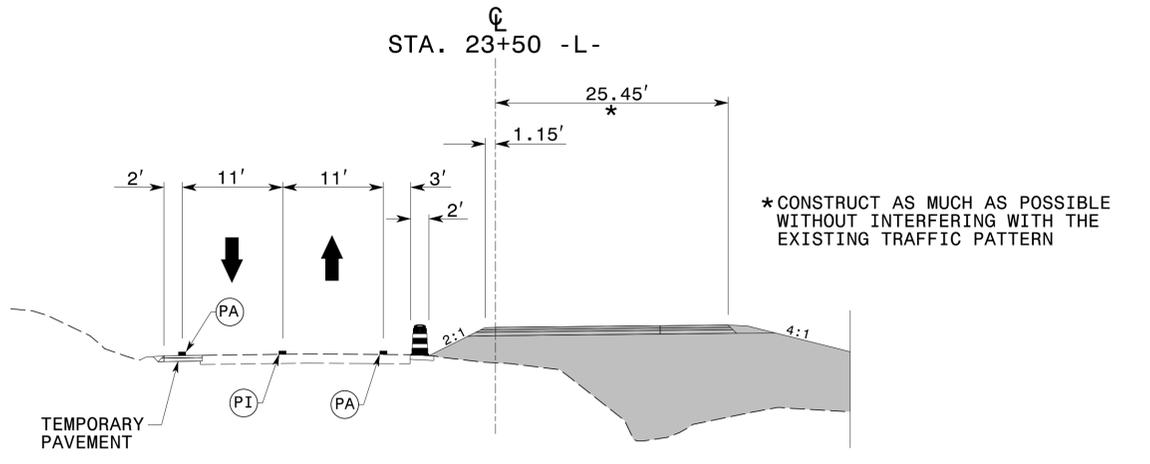
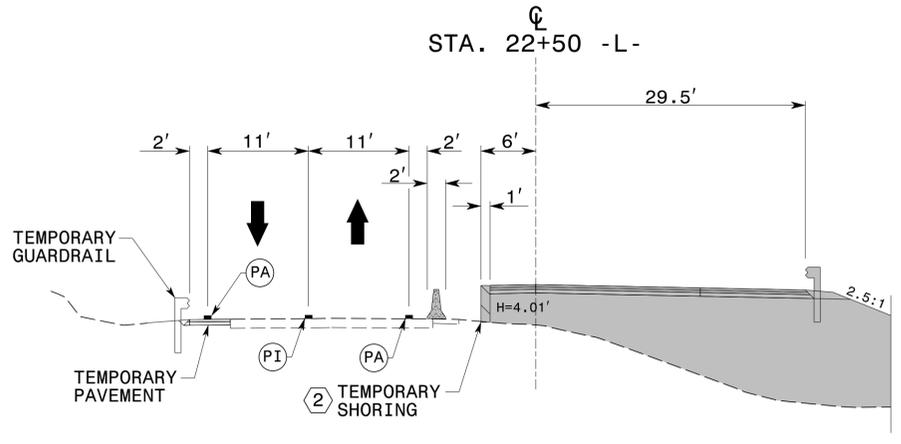


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 User:scodts

APPROVED: *Don A. Parker*  
 DATE: 6/28/2017  
  
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**PHASE I  
 CROSS-SECTIONS**



5/22/2017  
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APPROVED: *Don A. Parker*  
40482802618410

DATE: 6/28/2017

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## PHASE I CROSS-SECTIONS

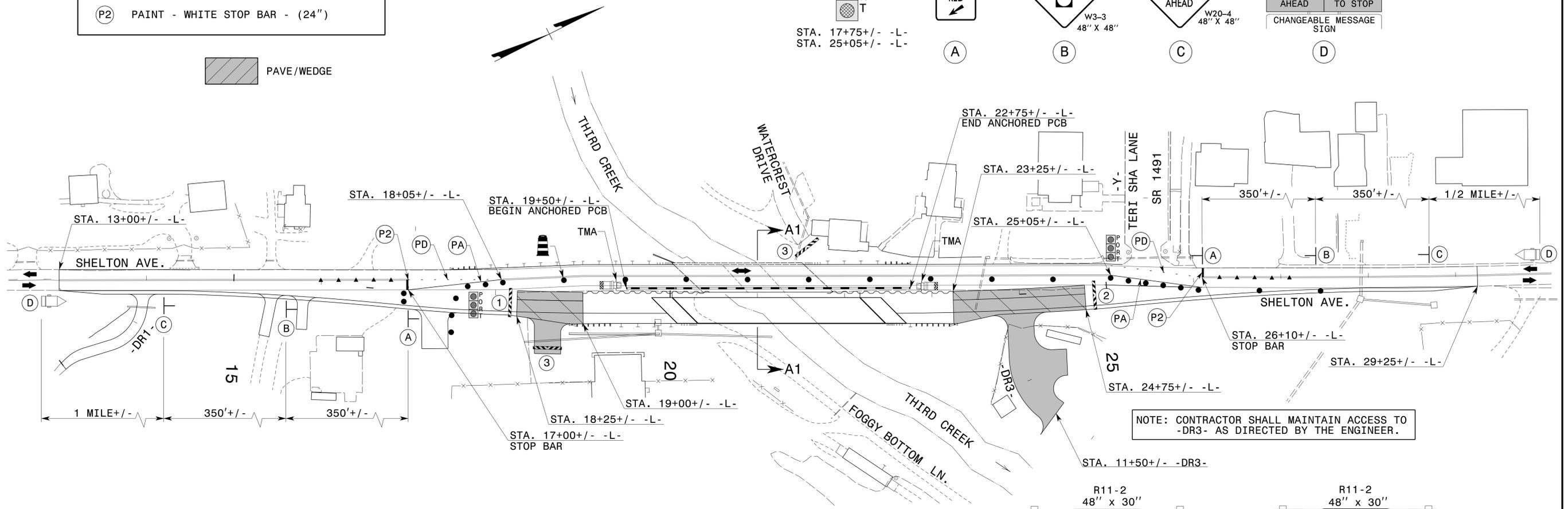
TEMPORARY PAVEMENT MARKING LEGEND	
(PA)	PAINT - WHITE EDGELINE - (4")
(PD)	PAINT - WHITE MINISKIP - (4")
(P2)	PAINT - WHITE STOP BAR - (24")



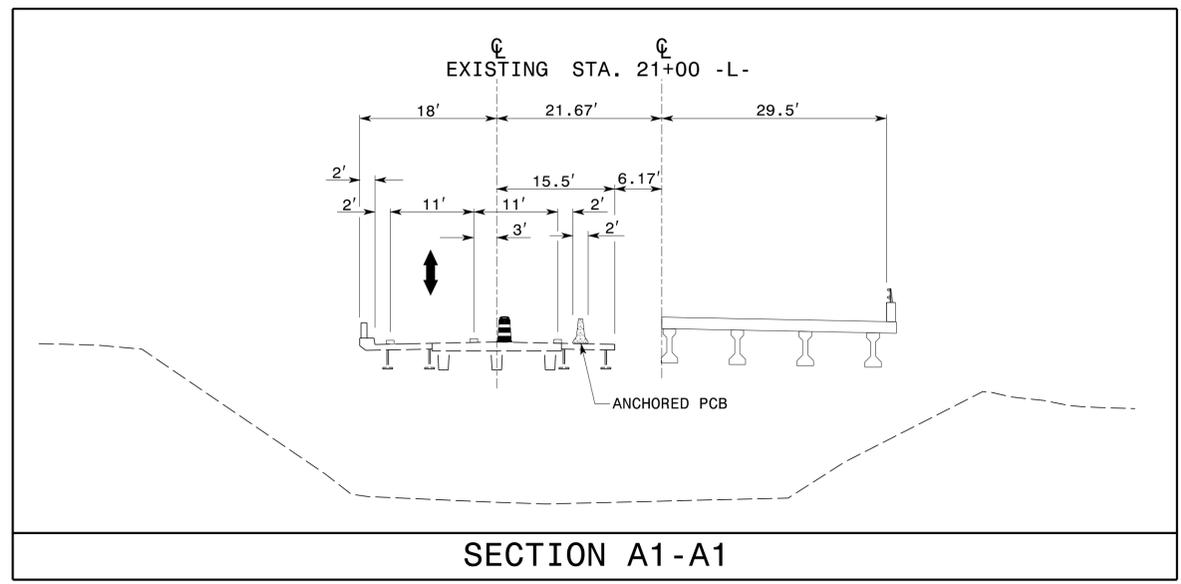
PORT  
 R10-6 24" X 36"  
 W3-3 48" X 48"  
 W20-4 48" X 48"  

MESSAGE NO. 1	MESSAGE NO. 2
TRAFFIC SIGNAL AHEAD	BE PREPARED TO STOP

 CHANGEABLE MESSAGE SIGN



NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO -DR3- AS DIRECTED BY THE ENGINEER.



R11-2 48" x 30"  
 R11-2 48" x 30"  
 R11-2 48" x 30"  
 W1-6L 48" x 24"  
 W1-6R 48" x 24"  
 TYPE III BARRICADE (1)  
 TYPE III BARRICADE (2)  
 TYPE III BARRICADE(S) (3)

APPROVED: *Don A. Parker*  
 DATE: 6/28/2017



**PHASE I DETAILS  
 (WEEKEND TIE-IN OF  
 PHASE II PATTERN)**

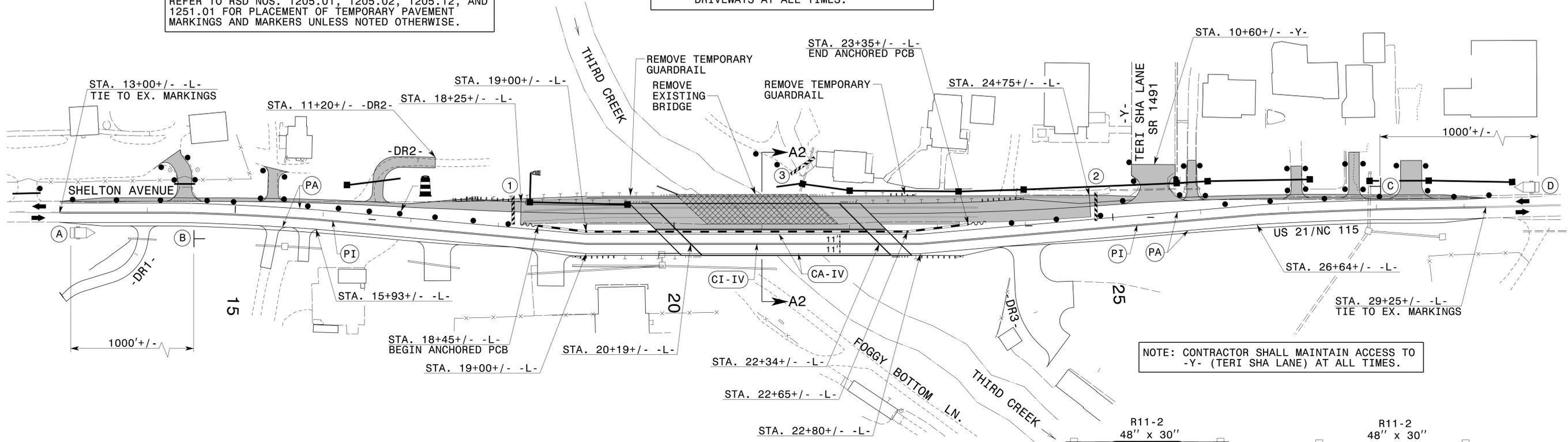
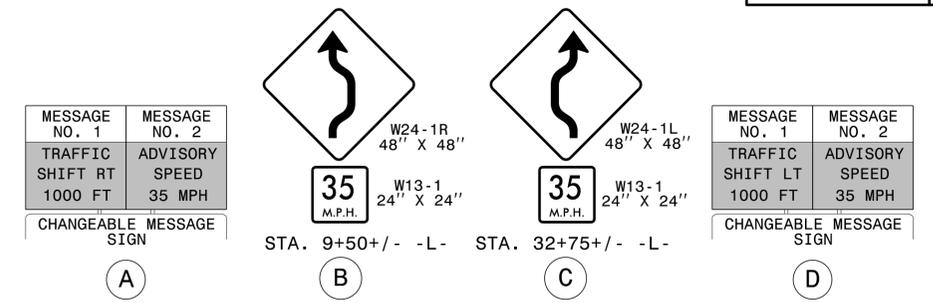
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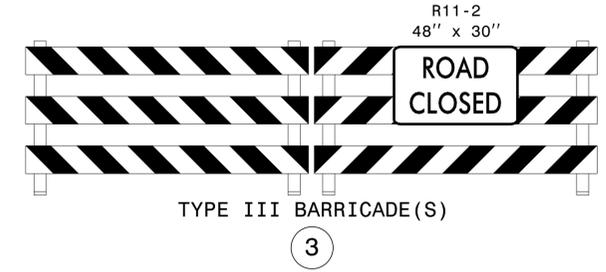
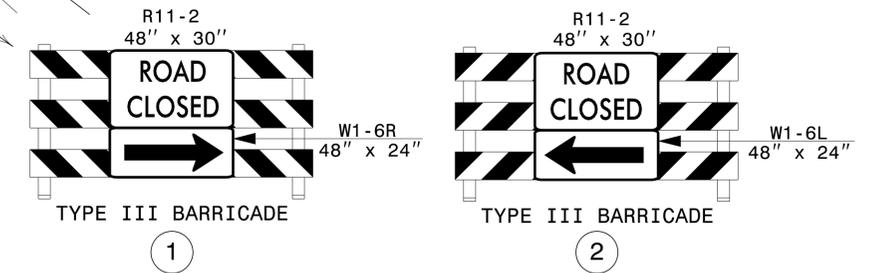
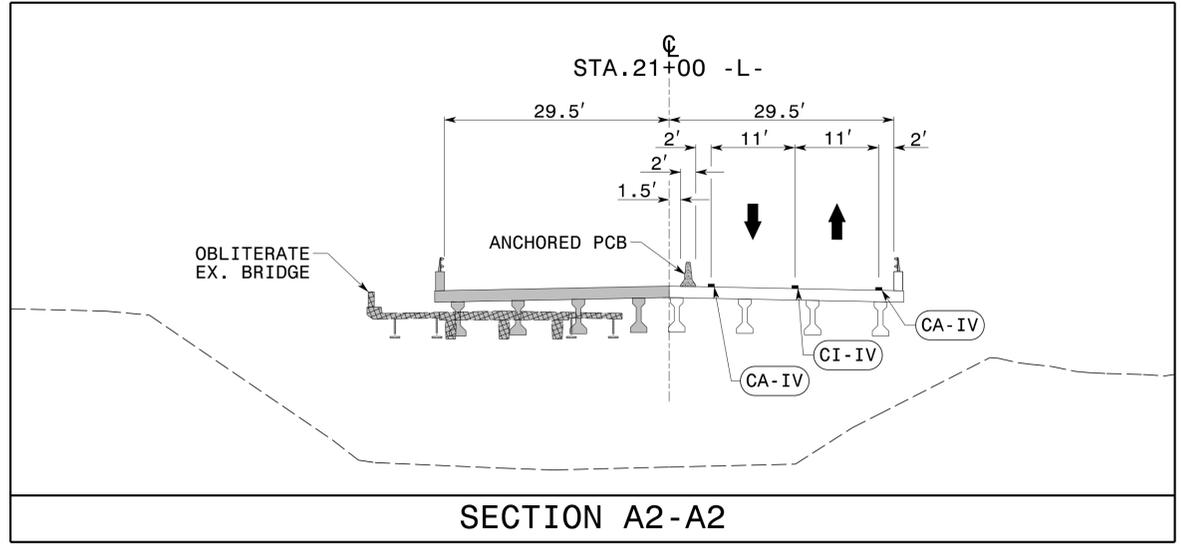
TEMPORARY PAVEMENT MARKING LEGEND	
CA-IV	COLD APPLIED PLASTIC (TYPE 4) - WHITE EDGELINE - (4")
CI-IV	COLD APPLIED PLASTIC (TYPE 4) - YELLOW DOUBLE CENTER - (4")
PA	PAINT - WHITE EDGELINE - (4")
PI	PAINT - YELLOW DOUBLE CENTER - (4")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.



NOTE: CONTRACTOR SHALL MAINTAIN ACCESS TO -Y- (TERI SHA LANE) AT ALL TIMES.



APPROVED: *Don A. Parker*  
 DATE: 6/28/2017  
 SEAL 043251  
 ENGINEER DON A. PARKER



PHASE II DETAILS

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